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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,954	04/07/2006	Toshikazu Suganuma	80360(47762)	7305
21874 7590 11/09/2010 EDWARDS ANGELL PALMER & DODGE LLP P.O. BOX 55874 BOSTON, MA 02205				
EXAMINER				
CHAUDRY, ATIF H				
ART UNIT		PAPER NUMBER		
3753				
MAIL DATE		DELIVERY MODE		
11/09/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/574,954

**Applicant(s)**

SUGANUMA ET AL.

**Examiner**

ATIF H. CHAUDRY

**Art Unit**

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2010.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,6-8,10 and 12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,6-8,10 and 12 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/30/2010 has been entered.

### **Status of the claims**

2. Applicant's amendment as filed on 01/04/2010 has been entered. Claims 1, 8, and 12 have been amended. Currently claims 1, 6-8, 10, 12 are pending in this application.

### ***Claim Objections***

Claim 12 recites "the liquid supply method according to claim 8...". There are no method steps recited in claim 8. It is suggested that the recitation of claim 12 read -- The liquid supply apparatus according to claim 8...".

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1, 6-8, and 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (JP2000208471) in view of Laverdiere (US PG Pub 20050173003) further in view of Baker (3410531).

6. Ota et al. (abstract, Fig. 1) discloses a liquid supply apparatus for and illustrates a method of supplying an electrolytic aqueous solution (supply liquid) to ultrapure water (primary fluid) comprising of a supply section having a supply liquid tube, and primary section comprising a primary circulation tube. In operation, the supply section fluid must inherently have larger pressure than the primary section in order to inject the additive liquid into the primary fluid. Ota et al. discloses regulator 4 to regulate the additive.

Ota et al. fails to disclose a hollow fiber shape circulation tube as pressure/flow regulators. Laverdiere (page 7, 2<sup>nd</sup> column, lines 30-35) teaches a fluid flow controller using hollow fiber tube to regulate pressure drops and thus control the flow rate. It would have been obvious to a person of ordinary skill in the art to have provided the mixing device disclosed by Ota et al. with hollow fiber tube as taught by Laverdiere in order to provide a convenient method of pressure and flow control.

Ota et al. fails to disclose keeping the supply liquid pressure constant. Baker (Fig. 1-3) teaches a method of mixing one liquid 40 to another liquid 42 while maintaining a desired mixing ratio when the two liquids are being supplied at a certain pressure (by pumps 48, 50) wherein flow rate can be varied while the mixing ratio is maintained at a constant level when the two liquids are fed at constant pressures without the use of a feedback mechanism. It would have been obvious to a person of ordinary skill in the art to have provided the mixing device disclosed by Ota et al. with a device providing a constant mixing ratio at variable flow rates (with constant upstream pressures) as taught by Baker in order to maintain desired mixing ratio without the requirement of a feedback control.

Ota et al. fails to disclose optimum ranges of tube diameter, flow rate, concentration ratio, or pressure ratio. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the claimed optimum ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. Claims 1, 6-8, and 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (JP2000208471) in view of Kumano et al. (US PG Pub 20060144777) further in view of Baker (3410531).
8. Ota et al. (abstract, Fig. 1) discloses a liquid supply apparatus for and illustrates a method of supplying an electrolytic aqueous solution (supply liquid) to ultrapure water

(primary fluid) comprising of a supply section having a supply liquid tube, and primary section comprising a primary circulation tube. In operation, the supply section fluid must inherently have larger pressure than the primary section in order to inject the additive liquid into the primary fluid. Ota et al. discloses a regulator 4 to regulate the additive.

Ota et al. fails to disclose a hollow fiber shape circulation tube as pressure/flow regulator. Kumano et al. (page 5, para 47) teaches using hollow fibers for optimizing pressure in fluid flow. It would have been obvious to a person of ordinary skill in the art to have provided the mixing device disclosed by Ota et al. with hollow fiber material for tubing as taught by Kumano et al. in order to provide a convenient method of pressure and flow control.

Ota et al. fails to disclose keeping the supply liquid pressure constant. Baker (Fig. 1-3) teaches a method of mixing one liquid 40 to another liquid 42 while maintaining a desired mixing ratio when the two liquids are being supplied at a certain pressure (by pumps 48, 50) wherein flow rate can be varied while the mixing ratio is maintained at a constant level when the two liquids are fed at constant pressures without the use of a feedback mechanism. It would have been obvious to a person of ordinary skill in the art to have provided the mixing device disclosed by Ota et al. with a device providing a constant mixing ratio at variable flow rates (with constant upstream pressures) as taught by Baker in order to maintain desired mixing ratio without the requirement of a feedback control.

Ota et al. fails to disclose optimum ranges of tube diameter, flow rate, concentration ratio, or pressure ratio. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the claimed optimum ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### ***Response to Arguments***

1. Applicant's arguments filed 09/30/2010 have been fully considered but moot in view of new grounds of rejection. Baker has been cited to show incorporation of a mixing device which varies the flow rate while keeping the upstream pressures and mixing ratio constant without a feedback control system.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATIF H. CHAUDRY whose telephone number is (571)270-3768. The examiner can normally be reached on Mon-Fri 8-5 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hepperle can be reached on (571)272-4913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Atif H Chaudry/  
Examiner, Art Unit 3753

/John Rivell/  
Primary Examiner, Art Unit 3753

10/25/2010